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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/869,683      | 09/18/2001  | Kimiyoshi Kitazawa   | 0038-0363P          | 8538             |

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EXAMINER

ZACHARIA, RAMSEY E

ART UNIT PAPER NUMBER

1773

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/869,683

Applicant(s)

KITAZAWA ET AL.

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,8-10 and 12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3,5,6,8-10 and 12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 30 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 112***

2. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The phrase "water absorptivity of said lumber is higher than that of a compressed lumber made from an ordinary lumber" renders claim 10 indefinite because the term "ordinary lumber" is not defined by the claim and the specification does not provide a standard for determining the what constitutes "ordinary lumber."

#### ***Claim Rejections - 35 USC § 102***

4. Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by Arakawa et al. (U.S. Patent 6,267,920).

Arakawa et al. teach a method of compressing wood such as lumber (column 1, lines 5-22). The lumber may be soft coniferous wood, such as pine (column 7, lines 37-42). A vinyl monomer, i.e. functional additive, may be used to fill cracks and vacancies in the wood (column 6, lines 44-54). Since the wood used by Arakawa et al. is coniferous such as pine, at least some of the cracks and vacancies are taken to have been formed by pine wood nematodes.

*Claim Rejections - 35 USC § 103*

5. Claims 5, 6, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viitaniemi et al. (U.S. Patent 5,685,353) in view of Arakawa et al. (U.S. Patent 6,267,920).

Viitaniemi et al. teach a method for compressive shaping of wood (column 1, lines 17-26). The wood is compressed within upper and lower compression plates, i.e. compressing dies (Figure 1 and column 1, lines 49-59). Moreover, Figure 1 illustrates that the ends of the wood are not in contact with the plates and therefore exposed to air. The wood may be coniferous wood, i.e. pine, or it may be deciduous wood compressed to 50% of its initial thickness (column 2, lines 59-63). The compressed wood is also heated while under compression (column 2, lines 25-32). The water content of the finished product is no more than 3% (column 2, lines 25-27). Since the wood used by Viitaniemi et al. is coniferous (i.e. pine), it is taken to have holes formed by pine weevils.

Regarding the flexural rigidity of claims 6 and 10, from Figure 7 in the instant application it appears that flexural rigidity is a function of water content. Since the water content of Viitaniemi et al. is no more than 3%, it should inherently have a flexural rigidity of 130 MPa or more.

The density of the edge portions is taken to be lower than that of the core and water absorptivity of the compressed wood is taken to be higher than that of compressed ordinary lumber because Viitaniemi et al. teach the use of pine. Pine wood is subject to attack from pine wood nematodes which will result in the formation of holes in the edge portions of the wood but not in the core. As a result of these holes in the edge portions, the compressed wood will have

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both a core with a higher density than the edges, and a higher water absorptivity than that of compressed lumber made from ordinary lumber (particularly since there is no limitation as to what constitutes ordinary lumber and therefore lumber with a low water absorption may be selected as the "ordinary lumber").

Viitaniemi et al. do not teach using a die having male and female die sections. However, Viitaniemi et al. is directed to shaping of wood through the use of upper and lower compression surfaces. Therefore, it would be obvious to one skilled in the art to use a male upper compression surface and a female lower compression surface (or vice versa) in place of flat plates depending on the desired final shape of the wood.

6. Claims 1-3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viitaniemi et al. (U.S. Patent 5,685,353) in view of Arakawa et al. (U.S. Patent 6,267,920).

Viitaniemi et al. teach a method for compressive shaping of wood (column 1, lines 17-26). The wood is compressed within upper and lower compression plates, i.e. compressing dies (Figure 1 and column 1, lines 49-59). Moreover, Figure 1 illustrates that the ends of the wood are not in contact with the plates and therefore exposed to air. The wood may be coniferous wood, i.e. pine, or it may be deciduous wood compressed to 50% of its initial thickness (column 2, lines 59-63). The compressed wood is also heated while under compression (column 2, lines 25-32). The water content of the finished product is no more than 3% (column 2, lines 25-27). Since the wood used by Viitaniemi et al. is coniferous (i.e. pine), it is taken to have holes formed by pine weevils.

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However, Viitaniemi et al. teach neither the water content of their lumber prior to compressing nor the use of a functional additive to fill holes in the wood.

Arakawa et al. is directed to a compressed lumber product (column 1, lines 5-22). Arakawa et al. disclose that compression is difficult unless the water content of the lumber is between 10-80% (column 3, line 66-column 4, line 9). Arakawa et al. also teach using a vinyl monomer, i.e. functional additive, to fill cracks and vacancies in the wood (column 6, lines 44-54).

One of ordinary skill would be motivated to air dry the wood of Viitaniemi et al. to a water content of as low as 10% because such wood is easier to compress. Furthermore, one of ordinary skill would be motivated to use a functional additive to fill cracks and vacancies in the wood in applications wherein it is desired that the final product have a smooth finished surface.

Regarding the limitations of claim 3, the specific gravity is a function of the degree of compression that the lumber has undergone. Since the lumber of Viitaniemi et al. has been compressed to the same degree as that of the instant invention, i.e. 50%, it should have the same specific gravity.

### ***Response to Arguments***

7. Applicant's arguments filed 06 April 2005 have been fully considered but they are not persuasive.

The applicants argue that exposing the ends as done in the process of Viitaniemi et al. will lead to a degree of compressed fixation that is lower than that of lumber whose ends are restrained by a restraining jig as shown by Figure 7 on page 416 of the Journal of Japan Wood

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Research Society, Vol 34, No. 6 (1998). The applicant also argues that Viitaniemi et al. do not teach that the density of the edge portion is lower than that of the core or that holes are formed in the edge but not the core by pine wood nematodes.

This is not persuasive because the difference in set recovery shown in Figure 7 in the Journal of Japan Wood Research Society between compressed wood with and without edge restraints ranges from only a few percent up to about 30%. However, Figure 7 of the instant application illustrates that the flexural rigidity at a water content of 3% is about 250 MPa. The relationship between set recovery and flexural rigidity is not clear, but even assuming a direct correlation the flexural rigidity of the lumber of Viitaniemi et al. should be no more than about 30% less than the value reported in Figure 7 of the instant application, i.e. about 175.

Furthermore, pine, by its nature, is subject to external attack by pine wood nematodes, which will result in the formation of holes in the edge portions of the wood but not in the core. Therefore, pine lumber, as used by Viitaniemi et al., would be expected to intrinsically have some holes formed by pine wood nematodes.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

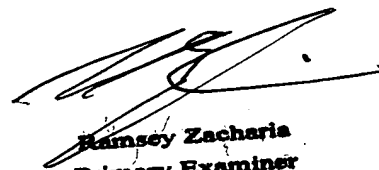
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
**Primary Examiner**  
**Tech Center 1700**